

**HYDROGEN GENERATION APPARATUS INCORPORATING A STAGED CATALYST
AND METHOD FOR USING SAME**

ABSTRACT

A method and apparatus for generation of hydrogen. The apparatus includes a hydrogen reactor chamber (99) and a plurality of catalysts within the chamber (99) forming distinct zones or portions (200, 202, and 204), each zone or portion comprising a distinct catalyst or combination thereof. Said plurality of catalysts include at least one of a high-activity steam reformation catalyst, coke resistant steam reformation catalyst and steam reformation catalyst that promotes a water gas shift reaction.